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## WHAT ARE THE DISTINCTIVE NEEDS AND CONTRIBUTIONS OF THE HUMANITIES AND SOCIAL SCIENCES IN CYBERINFRASTRUCTURE?\*

American Council of Learned Societies Commission on Cyberinfrastructure for the Huma

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## 1 What Are the Distinctive Needs and Contributions of the Humanities and Social Sciences in Cyberinfrastructure?

In the National Foundation on the Arts and Humanities Act of 1965<sup>1</sup>—the legislation that created the National Endowment for the Humanities—two of the leading arguments presented for the act are:

- (3) An advanced civilization must not limit its efforts to science and technology alone, but must give full value and support to the other great branches of scholarly and cultural activity in order to achieve a better understanding of the past, a better analysis of the present, and a better view of the future.
- (4) Democracy demands wisdom and vision in its citizens. It must therefore foster and support a form of education, and access to the arts and the humanities, designed to make people of all backgrounds and wherever located masters of their technology and not its unthinking servants.

Both of these arguments remain true as we enter into an "advanced civilization" that depends on technology for the daily business of the culture as well as for its education and its research. The humanities and the social sciences are critical players in the development of cyberinfrastructure because they deal with the intractability, the rich ambiguity, and the magnificent complexity that is the human experience.

In the Atkins report, cyberinfrastructure consists of

- grids of computational centers;
- comprehensive libraries of digital objects;
- well-curated collections of scientific data;
- online instruments and vast sensor arrays;

http://www.neh.gov/nehat40/founding/legislation.html

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<sup>&</sup>lt;sup>1</sup>National Endowment for the Humanities (<a href="http://www.neh.gov/nehat40/founding/legislation.html">http://www.neh.gov/nehat40/founding/legislation.html</a>).

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## • convenient software toolkits.

Humanities scholars and social scientists will require similar facilities but, obviously, not exactly the same ones: "grids of computational centers" are needed in the humanities and social sciences, but they will have to be staffed with different kinds of subject-area experts; comprehensive and well-curated libraries of digital objects will certainly be needed, but the objects themselves will be different from those used in the sciences; software toolkits for projects involving data-mining and data-visualization could be shared across the sciences, humanities, and social sciences, but only up to the point where the nature of the data begins to shape the nature of the tools. Science and engineering have made great strides in using information technology to understand and shape the world around us. This report is focused on how these same technologies could help advance the study and interpretation of the vastly more messy and idiosyncratic realm of human experience.

Building a cyberinfrastructure for the humanities and social sciences presents an opportunity to take advantage of prevailing economic, organizational, and technological forces. We have remarkable opportunities to bring new analytic and interpretive power to bear on the materials and the methods of the humanities and the social sciences: by so doing, we can advance our understanding of human cultures past, present, and future. In the process, however, scholars, librarians, publishers, and universities will also have to reexamine their own academic culture, rethinking its outward forms, its established practices, and its apparent assumptions.

The case for why and how to seize this opportunity is presented in the following chapters. Chapter 1 articulates a vision for the future of the humanities and social sciences. Chapter 2 highlights some of the fundamental constraints that could limit our ability to achieve that vision. Chapter 3 presents a framework for making the changes needed to overcome those constraints and for undertaking the online integration of the cultural record.